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RUNNING HEAD: Ambivalence and discomfort

Ambivalence and decisional conflict as a cause of psychological discomfort: Feeling tense before jumping off the fence

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Abstract

It has long been assumed that people experience evaluative conflict or ambivalence as unpleasant. In three studies we provide direct evidence for the assumption that ambivalence is unpleasant, but only when one has to commit to one side of the issue. In those situations ambivalence will be related to outcome uncertainty and feelings of discomfort. We examined his prediction using both self-reports and physiological measures. In a first study we manipulated ambivalence and whether or not participants had to take a clear stand vis-a vis the attitudinal issue and choose a position for or against it. Results indicate ambivalence was only related to physiological arousal when a choice had to be made. Feeling ambivalent about an issue without the necessity to choose did not result in higher levels of arousal. A second study replicated and extended these findings by including a measure of subjective uncertainty about the decision. Results showed the same pattern as in Study 1, and indicate that the relation between ambivalence and arousal is mediated by uncertainty about decisional outcomes. In the third and final study these findings are corroborated using self-report measures; these indicated that ambivalence-induced discomfort is related to specific (negative) emotions.

(197 words)

KEYWORDS: Ambivalence, discomfort, arousal, choice, judgment, uncertainty, attitudes

Ambivalence and decisional conflict as a cause of psychological discomfort: Feeling tense when jumping off the fence

Generally people like to see themselves as consistent, and prefer thoughts, feelings and behaviors to be in accordance with each other. Inconsistency is often experienced as unpleasant. For example, when we realize we acted unfriendly toward someone we like, the inconsistency between attitude and behavior can lead to feelings of discomfort. Several theories in social psychology address this preference for evaluative consistency. Two seminal examples are balance theory (Heider, 1946) and cognitive dissonance theory (Festinger, 1957). Research evidence indicates that people are motivated to reduce inconsistencies, and assume that this tendency is caused by the unpleasantness of evaluative conflict. Direct evidence for this assumption is provided by research on cognitive dissonance showing a positive relation between dissonance and physiological arousal (Croyle & Cooper, 1983).

Given that inconsistencies between attitudes or between attitudes and behavior are unpleasant, we expect evaluative inconsistencies *within* attitudes also to be unpleasant. Such attitudes, containing strong positive and negative thoughts (or feelings), are known as *ambivalent* attitudes. It has been argued that ambivalence is unpleasant (Newby-Clark, McGregor, & Zanna, 2002), but empirical evidence is scarce.

Some indirect empirical evidence for this assumption was obtained in studies on ambivalence and depth of processing. Jonas, Diehl and Brömer (1997) suggest that uncertainty about ones attitude can facilitate the motivation to invest cognitive effort (see also Chaiken, Liberman, & Eagly, 1989). They argue that uncertainty is unpleasant and that people are motivated to end this aversive state. For this reason ambivalent attitude holders are expected to process attitude relevant information thoroughly. Jonas and colleagues (1997) and Maio, Bell and Esses (1996) found support for this view and showed that ambivalent attitudes

are related to more thorough, systematic processing of information. Nordgren, van Harreveld, and van der Pligt (2006) replicated and extended these findings by showing that this relation disappears once participants do not attribute their arousal to their ambivalence but to something else.

Direct evidence for a relation between ambivalence and discomfort is limited. Hass, Katz, Rizzo, Bailey, and Moore (1992) examined the relation between intergroup ambivalence and negative affect, and found that racial ambivalence is related to a more negative mood. Maio, Greenland, Bernard, and Esses (2001) on the other hand measured skin conductance level and (surprisingly) found a *negative* correlation between ambivalence and physiological arousal.

The present studies address the issue of the unpleasantness of ambivalence and focuses on *when* ambivalence is especially unpleasant. Newby-Clark, McGregor, and Zanna, (2002) argued that ambivalence is only experienced as uncomfortable when the positive and negative component of the attitude are *simultaneously* accessible. Only then does the ambivalent attitude holder become aware of his or her conflicting thoughts or feelings (see also de Liver, van der Pligt, & Wigboldus, 2007). Newby-Clark et al. also suggested that ambivalence is unpleasant for similar reasons as dissonance. An important difference between ambivalence and dissonance is however that the former is largely a pre-decisional phenomenon, while dissonance generally concerns post-decisional conflict between attitudes and behavior. This may explain the conflicting findings of ambivalence on discomfort. Ambivalent attitude holders often 'sit on the fence'; they have not committed themselves by making a choice between their opposing behavioral beliefs.

This does not mean that ambivalence is never unpleasant. The distinction between judgment and choice can help to predict when ambivalence is unpleasant. Hogarth (1981) illustrates the difference between the judgment and choice by comparing them to taking aim

and actually shooting. The judgment (taking aim) is non-committal, pulling the trigger however commits one to the judgment. For the ambivalent attitude holder, having to commit to one alternative should be unpleasant because neither alternative is entirely satisfying and both are associated with uncertain outcomes. Similarly, Hogarth (1981) argues that the *anticipation* of commitment can already lead to feelings of conflict. We therefore expect ambivalence to be unpleasant due to the anticipation of uncertain outcomes of ones choice.

In the present studies we aim to show that the anticipation of commitment is crucial in causing ambivalence-induced discomfort. More specifically we argue that when people are ambivalent and a choice needs to be made, conflict and feelings of discomfort will arise. When the situation does not involve choice, and commitment can thus remain low, there is less reason for discomfort, even when feeling ambivalent.

Study 1

Our aim is to examine whether ambivalence is particularly stressful when an attitude relevant choice has to be made. In order to address this question, we experimentally manipulate ambivalence and assess participants' Skin Conductance Level (SCL) as a measure of physiological arousal.

The attitude object was the potential introduction of a new labor law in the Netherlands, similar to the one that caused turmoil in France during the first months of 2006. This law would make it easier for employers to hire and fire young people and caused hundreds of thousands of people to protest against this law in France. On the other hand, some were very much in favor because it might offer more opportunities for young people. Dependent on experimental condition, participants read either a univalent (negative) or an ambivalent text about such a law in the Netherlands. After reading this article, ambivalence

and overall attitude were measured and we manipulated whether or not ambivalent attitude holders were forced to 'jump of the fence' and commit themselves to a discrete choice.

Method

Participants and design. 67 students (16 male, 51 female) of the University of Amsterdam participated in the experiment in return for course credit or money (7 euros). Age of participants ranged from 18 to 26 years (M = 20.97, SD = 1.91). Seven participants were excluded from further analyses because they failed to correctly follow the experimental procedure or expressed suspicion regarding the cover story. Participants were randomly assigned to either the ambivalence with choice condition, the ambivalence without choice condition or the control (univalent) condition.

Materials. Skin Conductance Level (SCL) was used to measure physiological arousal. SCL was recorded by attaching two electrodes to the medial phalanges of the index- and middle finger. The hand with the electrodes was always the passive one and remained in rest throughout the experiment. The electrodes were connected to a GRS measurement device consisting of an input device and an output amplifier. The range of the input device was approximately 0 to 100 µS (micro-Siemens). The output amplifier adjusted the signal (50 Hz) from the input device to µS (covering 0 to 100 µS), which was sent to a personal computer, where the signal was converted to data representing µS over periods of 10 seconds.

We assessed both potential ambivalence and felt ambivalence. The former was assessed by using the split semantic differential procedure suggested by Kaplan (1972). We asked participants "how positive are your thoughts about the new labor law?" with a 4-point response scale ranging from *not at all positive* (1) to *very positive*. We assessed the negative component with a similar measure. Subsequently we calculated a potential ambivalence score using the formula by Thompson, Zanna, and Griffin (1995): $(P + N)/2 - [P - N]$. The rationale

behind this formula is that strong positive and negative feelings are related to higher levels of ambivalence. Scores on this measure could range from -2 to 4.

Felt ambivalence was assessed using two different measures. The first was based on Jamieson (1993), consisting of two items (r = .88) like: "I feel torn between the two sides of the new employment law". Responses could range from *completely disagree* (1) to *completely agree* (9). The second was a measure by Priester and Petty's (1996), consisting of three items such as "Towards the introduction of the new employment law I feel….", with a response scale ranging from *no conflict at all* (1) to *maximum conflict* (9). Cronbach's α was .92. Overall attitude was measured with two 9-point scales (r = .96) ranging from *negative* (1) to *positive* (9) and from *bad* (1) to *good* (9). Participants were presented with each of these items on the computer screen and responded by pressing buttons on a switch box.

Procedure. Upon arrival, participants were seated in front of a computer screen and after attaching the electrodes to the participants' index- and middle-finger, participants were told to relax and wait for the experiment to begin. The experimenter went to an adjoining room and started the program.

The experiment started off with an adaptation period of three minutes. Subsequently the baseline period of six minutes started, during which a quiet wildlife movie was shown (Phase 1). When the movie was finished, subjects were asked to turn around a piece of paper with the ambivalent or univalent text on it and read the text. Next they completed the ambivalence items and overall attitude measure. Subsequently the coverstory appeared onscreen (Phase 2).

In this coverstory, participants were told they would be asked to write an essay on the attitudinal topic. They were told that a random selection of the essays written during the course of the experiment would be published in the student newspaper of the University of Amsterdam. Participants in the ambivalence with choice condition were told they had to

choose between writing an essay that was positive about the labor law *or* one that was negative about the law. Participants in the ambivalence without choice and control conditions were not instructed to choose a side and could thus write an essay as moderate as they wanted.

All participants then had five minutes to think about the content of their essay. Participants in the ambivalent choice condition were first instructed to make a discrete choice with respect to the viewpoint in their essay. They could press '1' for an essay in favor or press '2' for an essay against the employment law. After doing so all participants were instructed to wait (Phase 3). After 30 seconds of waiting, the experimenter came in, and removed the electrodes. Participants wrote their essay, after which they were thanked, debriefed and rewarded for their participation. An overview of the procedure is presented in Table 1.

Results

Manipulation checks. To assess whether the ambivalence induction was successful, we examined the scores on the ambivalence and attitude measures in each of the experimental conditions. Results indicate that on each measure of ambivalence participants reading the ambivalent newspaper article reported higher levels of ambivalence as compared to participants in the control condition. Moreover, participants who read the ambivalent article reported an attitude around midpoint of the scale, while participants who read the univalent (negative) article reported an attitude that was significantly more negative. These results, summarized in Table 2, clearly indicate that the manipulation of ambivalence was successful.

In order to examine whether participants in the ambivalent choice condition are committed to their decision, we examined if the essays in this condition were more polarized than in the ambivalence without choice condition. We entered the number of positive and negative arguments in each of the essays in the same formula we used to calculate ambivalence scores (Thompson et al., 1995). This led to polarization scores ranging from -3.5

to 2.5, with lower scores indicating more polarization. A one-way Anova comparing the two ambivalence conditions shows a significant difference, $F(1, 39) = 20.65$, $p < .001$. Participants who do not have to choose are less extreme in their essays ($M = .19$, $SD = 1.64$), as compared to their choosing counterparts ($M = -1.73$, $SD = .95$). In other words, participants who had to choose were indeed committed to their choice.

SCL and ambivalence. The strength of a SCL signal varies across different skin types, and thus individual differences are quite large. As recommended by Ben-Shakhar (1985) we chose to examine the change in SCL on an individual level. For every participant we subtracted the mean SCL signal during the baseline movie (SCL-base) from the mean SCL signal during a phase in the experiment. This difference was then divided by SCL-base and multiplied by 100. Thus we calculated the relative increase in arousal for each participant in each phase.

Examination of the differences between conditions showed some modest differences *before* participants made their choice. At Phase 2, in the non-ambivalent (control) condition SCL had increased by 29.51 % ($SD = 13.65$). In the ambivalence-without -choice condition the increase was 32.12 % ($SD = 14.98$) and in the ambivalence with choice condition 38.85% ($SD = 20.48$). LSD post-hoc tests revealed that the difference between the ambivalent choice condition and univalent control condition approaches significance ($p = .079$), while the comparisons between ambivalence-without choice and control remained non-significant ($p = .623$).

As Figure 1 clearly shows, differences between conditions were most pronounced *after* participants in the ambivalent choice condition had committed themselves to a pro or con standpoint on the issue. At that point SCL had increased by 31.36 % ($SD = 17.28$) in the non-ambivalent (control) condition. In the ambivalence without choice condition the increase was 38.86 % ($SD = 17.35$) and in the ambivalence with choice condition 50.99% ($SD =$

22.27). A one-way Anova showed a significant effect of condition, $F(2, 58) = 6.04$, $p = .004$. LSD posthoc tests showed that the ambivalent choice condition differed significantly from the control condition ($p = .001$) and from the ambivalent-no-choice condition ($p = .034$). The ambivalent condition without choice did not differ from the control condition ($p = .22$).

To examine whether differences between conditions gradually became more pronounced throughout the experiment, we performed a repeated measures analysis with SCL increase during the three phases (baseline, pre-choice, post-choice) as a within-subjects factor and experimental condition as between-subjects factor. Results showed a significant interaction between condition and time, $F(2, 58) = 3.94$, $p = .025$. Moreover, within-subjects contrasts showed a linear trend for this interaction, $F(2, 58) = 5.49$, $p = .007$. In other words, the increase in SCL was lowest in the control condition, highest in the ambivalence choice condition, with the ambivalent-no-choice participants in-between.

Discussion

Results of this first study support our hypothesis that ambivalence is only unpleasant when one has to choose and commit oneself to one side of an issue. We did not test why exactly this choice makes ambivalence so unpleasant, and why this is most pronounced *after* the decision. One explanation for the latter finding is that ambivalent attitude holders find the dissonance itself uncomfortable. Each side of the issue is only partly in accordance with their attitude and they could feel 'caught between a rock and a hard place'.

This may be the case, but arousal is clearly already on the increase before the choice. Therefore, again building upon work on dissonance theory, we suggest that a different variable plays an important role. Cooper and Fazio (1984) argued that the anticipated *consequences* of evaluative conflict are important. Cooper and Worchel (1970), Cooper,

Zanna, and Goethals, (1974) and Scher and Cooper (1989) have shown that when counterattitudinal behavior has no negative consequences, no dissonance is experienced.

We would like to argue that the anticipated consequences of the choice also drive the effects observed in Study 1. We believe ambivalent attitude holders making a discrete choice anticipate potential outcomes associated with each of the alternatives. Moreover, the outcomes associated with each of the alternatives are uncertain, and this uncertainty results in discomfort and arousal. The ambivalent attitude holder who can remain on the fence does not have to think about potential consequences or outcomes and will experience feelings of uncertainty to a lesser extent, or not at all.

Uncertainty about outcomes can also explain why in Study 1 ambivalent participants particularly feel uncomfortable *after* choosing. After commitment to a choice alternative, one will inevitably have to deal with the (at that point uncertain) outcomes associated with it. In other words, the ambivalent attitude holder has not only committed to a choice alternative, but also to the uncertain outcomes associated with it. The results of Study 1 indeed indicate that arousal, which was already increasing in the pre-decisional stage, was further enhanced after the decision was made.

In short, we think uncertainty about the possible outcomes of one's decision was the underlying variable explaining the pattern of results obtained in Study 1. Moreover, ambivalence is particularly experienced as uncomfortable when a choice has to be made, because only then people will worry about the uncertain consequences of their choice. This uncertainty is thus associated with arousal and discomfort.

Study 2

In this study we aim to replicate and extend the findings of Study 1. In the present study, we also assess experienced uncertainty regarding the consequences of the choice. We expect that levels of uncertainty would show a pattern similar to that of the SCL increase in Study 1. It is also expected that uncertainty mediates the impact of the experimental manipulation on SCL.

Method

Participants and design. 80 students from the University of Amsterdam participated in the experiment in return for course credit. Eight participants were excluded from further analyses, because they failed to correctly follow the experimental procedure or expressed suspicion regarding the cover story. The final sample thus consisted of 72 participants, 9 male and 63 female. Age of participants ranged from 17 to 34 (M = 20.13, SD = 3.19). Participants were randomly assigned to either the ambivalence with choice condition, the ambivalence without choice condition or the control (univalent) condition.

Materials. Skin Conductance Level and overall attitude were measured in exactly the same manner as in Study 1. We did incorporate a change with respect to the ambivalence measures. Because we are examining ambivalence-induced *discomfort*, we decided to focus on the felt ambivalence measures and exclude the potential ambivalence measure used in Study 1.

We also measured the extent to which participants felt insecure about the potential consequences of their choice. We did this by asking participants: "I am uncertain whether I will make the right decision" and "I am uncertain whether the other option will turn out to be better". Both items (r = .62) were measured on a scale ranging from *very certain* (1) to *very uncertain* (9). Uncertainty was measured immediately after the coverstory. The remaining phases were identical to Study 1.

Results

Manipulation checks. As in the previous study we examined the scores on the ambivalence and attitude measures in each of the experimental conditions. Again the results (summarized in Table 3) indicate that the manipulation of ambivalence was successful. Participants who had to choose also seemed more committed to their choice, as indicated by the essays of participants in the ambivalence choice condition being more polarized (M = -2.00, SD = .96) as compared to those in the ambivalence no-choice condition (M = .26, SD = 1.91), $F(1, 50)$ = 28.39, $p < .001$).

SCL and ambivalence. We first calculated for each participant the relative increase in arousal, as compared to baseline and examined the development in SCL in each of the conditions. Examination of the pre-choice differences between conditions showed that before participants made a choice SCL has increased by 25.13 % (SD = 14.25) in the non-ambivalent (control) condition. In the ambivalence without choice condition the increase was 28.19 % (SD = 22.88) and in the ambivalence with choice condition the increase was clearly higher, 37.63% (SD = 21.65). LSD post-hoc tests revealed that the difference between the ambivalent choice condition and univalent control condition was significant (p = .035), while the comparison between ambivalent no-choice and univalent control was not (p = .58).

As in the previous study, differences between conditions were more pronounced after the decision. As Figure 2 shows, in the course of the experiment SCL increased by 29.99 % (SD = 18) in the non-ambivalent (control) condition. In the ambivalence-without-choice condition the increase was 35.17 % (SD = 27.32). SCL increase was highest in the ambivalence with choice condition 59.23 % (SD = 63.8). As in Study 1, a one-way Anova shows a significant effect of condition, $F(2, 69)$ = 3.47, p = .037. LSD posthoc tests show that the ambivalent choice condition differed significantly from the control condition (p = .015)

and the ambivalent no choice condition (p = .044). The ambivalent condition without choice did not differ from the control condition (p = .65).

Finally, we carried out a repeated measures analysis with SCL increase during the three phases (baseline, pre-choice, post-choice) as a within-subjects factor and experimental condition as between-subjects factor. Results confirm those of Study 1, and showed a significant interaction between condition and time, $F(2, 69) = 3.09$, p = .018. As before, the analysis of within subjects contrasts showed a significant linear trend, $F(2, 69) = 3.47$, p = .037.

Uncertainty. We computed a new variable based on the mean of the two uncertainty items and performed a one-way Anova to test for differences between conditions. This analysis approaches significance level, $F(2, 69) = 2.57$, p = .08. LSD posthoc tests revealed significant differences between the ambivalent choice condition (M = 4.86, SD = 1.35), on the one hand, and the control (M = 4.30, SD = .95) and ambivalence no choice (M = 4.30, SD = .48) conditions on the other, (both p = .05). Participants were less certain about the consequences of their essay in the ambivalent choice condition than in the other two conditions.

Next, we examined whether uncertainty mediated the effect of our experimental manipulation on SCL. A mediational analysis with uncertainty and condition as predictors of arousal indicated that uncertainty fully mediated the effect of experimental condition on arousal (*Sobel's* $Z = 1.95$, p = .05). In other words choice-related ambivalence is uncomfortable because it is associated with uncertainty about the consequences of the decision.

Discussion

The results of the first two studies indicate that ambivalence is particularly unpleasant when a choice has to be made. Moreover, ambivalence-induced discomfort appears to be caused by feelings of uncertainty regarding the potential consequences of the choice. A few questions remain however.

First, the previous studies did not examine univalent choices. At first glance there is not much reason to assume that univalent choices will be associated with discomfort. For example, most non-smokers will not experience choice-related discomfort when they are offered a cigarette. Nonetheless we decided to add a third experiment to exclude this possible explanation.

Second, theoretically it is possible that the arousal we have found to be related to ambivalence is *pleasant*. Based on earlier work on dissonance and arousal (Elliot & Devine, 1994) this appears unlikely, but in our third study we also aim to address this possibility and assess the evaluative nature of the arousal associated with choice.

Study 3

In this last study we orthogonally manipulate ambivalence and choice, concerning a new attitude object: the potential introduction of an 'energy tax'. We expect discomfort to be most pronounced when ambivalence is high and a choice has to be made. To establish the valence of the ambivalence-induced arousal we found earlier, we now assess discomfort using self-report measures of affect.

Method

Participants and design. 99 students from the University of Amsterdam participated in the experiment in return for course credit (28 male and 71 female). Age of participants ranged from 18 to 36 (M = 21.13, SD = 3.19). By orthogonally manipulating ambivalence and choice we created a 2 (ambivalence high/low) x 2 (choice yes/no) design. Participants were randomly distributed over experimental conditions.

Materials. As in the previous study ambivalence was manipulated using fake newspaper articles that were either ambivalent or negative (univalent). We used a different attitude object in this study; the potential introduction of a tax on the use of energy, supposedly with the intention of protecting the environment through the discouragement of careless energy use. Ambivalence was measured using the Jamieson (1993) and Priester and Petty (1996) measures (alpha's were .93 and .72). Choice was manipulated by asking participants to write an essay, similar as in the previous studies.

We measured experienced affect after participants were told that they would have to write an essay but before the actual decision. We first measured general positive and negative affect by asking the following questions: "How many negative feelings do you have at this moment?" and "How many positive feelings do you have at this moment?" both measured on a 7-point scale ranging from *none at all* to *many.* We also measured more specific emotions; anxiety, regret and fear. We asked participants the extent to which they experienced each of the emotions on a 7-point scale ranging from scale from *not at all* to *very much.*

Results

Manipulation checks. We first examined the scores on the ambivalence and attitude measures in each of the experimental conditions. Results (summarized in Table 4) indicate that the manipulation of ambivalence was successful.

General Affect. First we examined differences between conditions in terms of overall positive and negative affect. The results on positive affect show a marginal interaction between ambivalence and choice, $F(3,95) = 3.20$, $p = .077$. More specifically we found the lowest score on positive feelings for participants in the ambivalent choice condition (M = 4.00, SD = .24) as compared to the ambivalent no choice (M = 4.55, SD = .25), univalent no-choice (M = 4.27, SD = .23) and, in the light of the specific aims of this study most importantly, the univalent choice condition (M = 4.58, SD = .23). On overall negative affect we found a significant interaction between ambivalence and choice, $F(3,95) = 6.20$, $p = .014$. Here participants in the ambivalent choice condition reported most negative feelings (M = 4.20, SD = .29) as compared to the ambivalent no choice (M = 3.00, SD = .31), univalent no-choice (M = 3.54, SD = .29) and the univalent choice condition (M = 3.27, SD = .29). A specific analysis of contrast confirmed this pattern, $t(95) = 2.75$, $p = .007$.

Specific emotions. We also measured three more specific emotions; regret, anxiety and fear and on a composite score on these emotions we find a significant interaction between ambivalence and choice, $F(3,95) = 2.87$, $p = .04$. The ambivalent choice condition reported most negative emotions (M = 3.12, SD = .22) as compared to the ambivalent no choice (M = 2.20, SD = .24), univalent no-choice (M = 2.49, SD = .22) and the univalent choice condition (M = 2.50, SD = .22), A specific analysis of contrast confirmed this pattern, $t(95) = 2.79$, p = .006[1].

Overall, these findings confirm that the effects we found earlier on physiological arousal are not caused by choice alone, but by the combination of ambivalence and choice. Moreover, the results indicate that ambivalence-induced arousal is indeed unpleasant.

General Discussion

In research on attitudes it has long been assumed that ambivalence is unpleasant because people have a general preference for consistency. The current studies show that this is indeed the case, but particularly when the ambivalence can no longer remain non-committal and one has to choose between the two conflicting cognitions. When there is no need to choose, and one can hold on to the status quo, ambivalence is not more stressful than holding a univalent attitude. For example, if someone feels ambivalent about the benefits of private versus public schooling, this does not have to be stressful as long as there is no need to choose one of these options for ones children.

The current results suggest that when ambivalence is high, choice is unpleasant because of the uncertainty about the consequences of the choice. In other words, we feel uncomfortable when facing a jump off the fence, because we fear we may make the wrong decision and will have to deal with unwanted consequences. This reason for discomfort is in line with earlier research on dissonance, which has shown that consequences play a pivotal role in the relation between inconsistency and post-behavioral discomfort (i.e. Cooper & Fazio, 1984). We show that the anticipated consequences also play a role regarding pre-decisional ambivalence.

One aspect of these studies needs to be emphasized. The effects on SCL in studies 1 and 2 and the effects on the self-report measures in studies 2 and 3 reflect *pre-decisional* discomfort. However, in the first two studies differences between conditions are most pronounced *after* participants in the choice-condition have made a choice. We believe this is because from that moment on, they will have to deal with the uncertain consequences. Only after the choice, the consequences become inevitable, while the exact nature of the consequences at that point remains unclear. This shows that it is not the ambivalence per se that leads to discomfort, but the uncertainty about the consequences of a choice. Using the analogy by Hogarth (1981) described in the introduction; the ambivalent attitude holder who

has pulled the trigger remains uncertain until he knows whether or not the bullet has hit the target.

The current results also show that when ambivalence is indeed associated with physiological discomfort, this is because of the activation of specific emotions. Ambivalence-induced discomfort apparently is not a diffuse affective state, but one that is associated with uncertainty and decision-related emotions such as regret, fear and anxiety.

Finally, we would like to argue that the different physiological patterns in our two ambivalence conditions suggest that in theorizing about ambivalence we should distinguish between different *types* of ambivalence. The current results suggest that having mixed feelings about one attitude object is fundamentally different than being pulled towards (or pushed away from) two opposing behavioral alternatives. In other words, despite the fact that The Clash's late frontman Joe Strummer may have felt unpleasant when he expressed ambivalence: "I got a heart, I got a mind, but I can't keep them in time", he most likely felt more distress when confronted with an actual choice: "Should I stay or should I go? If I go there will be trouble, if I stay it will be double".

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Footnote

1. We also measured a fourth specific emotion; anger. Interestingly, on this emotion (less obviously related to the decision) we found no significant effects ($F < 1$). This suggests that the effects of ambivalence on arousal are not merely due to an overall affective response, but to an association with specific emotions, namely regret, anxiety and fear.

Figure captions

Figure 1: Relative SCL increase (%) by condition, compared to baseline, Study 1.

Figure 2: Relative SCL increase (%) by condition, compared to baseline, Study 2.

Table 1. Overview of Study 1

	Experimental condition		
Condition	Ambivalent with choice	Ambivalent without choice	Non-ambivalent condition
	Adaptation (*3 min*.)	Adaptation (*3 min*.)	Adaptation (*3 min*.)
Phase 1	Baseline movie (*6 min*.)	Baseline movie (*6 min*.)	Baseline movie (*6 min*.)
Phase 2	Coverstory 1 (*1 min.*)	Coverstory 2 (*1 min.*)	Coverstory 2 (*1 min.*)
	Making choice	-	-
Phase 3	Waiting (*30 sec*.)	Waiting (*30 sec*)	Waiting (*30 sec*)

Note. When no indication of time is given, participants manually proceeded by pushing 'continue' on the switchbox.

Table 2. Manipulation checks, Study 1.

	Ambivalent text		Univalent text	
Measure	*M*	*SD*	*M*	*SD*
Jamieson (1-9)	5.50	1.60	2.85**	1.84
Priester & Petty (1-9)	5.88	1.41	3.72**	1.95
Potential ambivalence (-2-4)	2.11	.85	1.55*	1.11
Attitude (1-9)	5.04	1.49	2.78**	1.54

* $p < .05$, ** $p < .001$

Table 3. Manipulation checks, Study 2.

	Ambivalent text		Univalent text	
Measure	*M*	*SD*	*M*	*SD*
Jamieson (1-9)	4.94	1.47	3.61*	1.66
Priester & Petty (1-9)	5.60	1.45	4.08*	1.86
Attitude (1-9)	5.17	1.42	2.78*	1.28

* $p < .001$

Table 4. Manipulation checks, Study 3.

	Ambivalent text		Univalent text	
Measure	*M*	*SD*	*M*	*SD*
Jamieson (1-7)	3.84	1.53	2.98*	1.53
Priester & Petty (1-7)	4.03	0.62	3.37**	0.77
Attitude (1-7)	4.27	1.64	3.10**	1.51

* $p < .01$

** $p < .001$